NEW CLAIMS ADDED IN REISSUE APPLICATION

Sub A1

37. A method for determining the time course of a reaction comprising:

(a) forming a composition containing a reactant and a luminophore, wherein

(i) the reactant reacts to form a reaction product;

(ii) the luminophore is capable of being induced to electrochemiluminesce; and

(iii) the electrochemiluminescence signal emitted upon exposure of said composition to electrical energy changes as said reaction progresses; and

(b) exposing the composition to electrical energy and measuring the electrochemiluminescence at different times so as to determine the time course of the reaction.

38. The method of claim 37, wherein the reaction is a bimolecular reaction of the reactant with a reaction partner.

39. The method of claim 37, wherein the reaction is a binding reaction of the reactant with a reaction partner.

40. The method of claim 37, wherein the reaction is an enzyme catalyzed reaction.

Sub A2

41. The method of claim 37, wherein the reactant participates with the luminophore in the electrochemiluminescent process.

42. The method of claim 37, wherein the reaction product participates with the luminophore in the electrochemiluminescent process.

43. The method of claim 37, wherein the reactant is a cofactor.

44. The method of claim 43, wherein the cofactor is NADH.

45. The method of claim 37, wherein the reaction product is a cofactor.

46. The method of claim 45, wherein the cofactor is NADH.

47. The method of claim 37, wherein the luminophore comprises an organic luminophore.

48. The method of claim 37, wherein the luminophore comprises an organometallic luminophore.

49. The method of claim 39, wherein the reactant is an antibody and the reaction partner is an antigen.

50. The method of claim 39, wherein the reactant is attached to the luminophore and the reaction partner is attached to a magnetic bead.

51. The method of claim 37, wherein step (b) comprises exposing the composition to a series of electrical energy pulses.

52. The method of claim 37, wherein step (b) comprises measuring the electrochemiluminescence at multiple intervals of time.

53. The method of claim 37, wherein said exposing to electrical energy comprises exposing the composition to a series of electrical pulses at a preselected potential and at preselected intervals of time and duration.

54. The method of claim 37, further comprising the step of determining the concentration of the reactant in a sample.

55. The method of claim 37, wherein the luminophore is selected from the group consisting of Ru-containing and Os-containing compounds.

56. The method of claim 37, wherein the luminophore is ruthenium tris-bypyridine or osmium tris-bipyridine.

57. A method for determining the time course of a binding reaction comprising:

(a) forming a composition containing a reactant, a reaction partner and a luminophore, wherein

i) the reactant and reaction partner bind to form a complex;

ii) the luminophore is capable of being induced to electrochemiluminesce; and

iii) the luminophore is attached to said reaction partner; and

(b) exposing the composition to electrical energy and measuring the electrochemiluminescence at different times so as to determine the time course of the reaction.

58. The method of claim 57, wherein the luminophore comprises an organometallic luminophore.

59. The method of claim 57, wherein the reaction partner is an antibody and the reactant is an antigen.

60. The method of claim 57, wherein the reaction partner is attached to the luminophore via a covalent bond.

61. The method of claim 57, wherein the reaction partner is attached to the luminophore via a biotin-streptavidin binding interaction.

Sub A4>

62. A method for determining the time course of an enzymatic reaction comprising:

(a) forming a composition containing an enzyme, an enzyme substrate and a luminophore, wherein

i) the enzyme catalyzes the reaction of the substrate to form a reaction product;

ii) the luminophore is capable of being induced to electrochemiluminesce; and

iii) the intensity of the ECL signal emitted upon exposure of said composition to electrical energy changes as said reaction progresses; and

(b) exposing the composition to electrical energy and measuring the electrochemiluminescence at different times so as to determine the time course of the reaction.

63. The method of claim 62, wherein the reactant is a cofactor.

64. The method of claim 63, wherein the cofactor is NADH.

Sub A5>

65. The method of claim 62, wherein the product is a cofactor.

66. The method of claim 65, wherein the cofactor is NADH.

67. The method of claim 62, wherein the luminophore comprises an organometallic luminophore.

Sub B6>

68. A method for determining the time course of a reaction comprising:

(a) forming a composition containing a reactant and a reaction partner of the reactant, wherein the reactant

reacts with the reaction partner to form a reaction product; and

(b) exposing the composition to electrical energy and measuring the electrochemiluminescence at different times.

69. The method of claim 66, wherein said composition further comprises a luminophore.

70. The method of claim 67, wherein said luminophore participates with the reactant, the reaction partner, or the reaction product, to emit electrochemiluminescence upon exposure to electrical energy.